

WHAT IS CLAIMED IS:

1. A semiconductor device utilizing an oscillator installed outside and having an inverting amplifier, which is installed in parallel with the oscillator, that intermittently outputs an oscillation signal in response to a given control signal, the inverting amplifier comprising:
 - a first terminal that receives a first signal from the oscillator;
 - a second terminal that provides a second signal to the oscillator;
 - a transmission gate installed between the first terminal and the second terminal, that is formed by using insulated gate transistors, set to an ‘on’ state where the first signal is transmitted in a case of the control signal being set to a first logical level, and set to an ‘off’ state where the first signal is not transmitted in the other case of the control signal being set to a second logical level;
 - an inverter installed between an output terminal of the transmission gate and the second terminal, formed by using the insulated gate transistors, and inverting a logical level of a given signal so as to output the second signal; and
 - a clamping circuit installed between the output terminal of the transmission gate and an input terminal of the inverter that is formed by using the insulated gate transistor, set to make the first signal output from the transmission gate applied to the input terminal of the inverter in a case of the control signal being set to the first logical level, and set to make predetermined voltage applied to the input terminal of the inverter in the other case of the control signal being set to the second logical level.
2. The semiconductor device claimed in claim 1, the transmission gate being a CMOS transmission gate, a combination of n-channel type MOS transistors and p-channel type MOS transistors.
3. The semiconductor device claimed in claim 1, further comprising:
 - a buffer, that is formed by using the insulated gate transistors, and that the signal output from the inverting amplifier to other circuits.
4. The semiconductor device claimed in claim 3, further comprising:
 - a transmission gate that is installed between the inverting amplifier and the buffer, and that is formed by using the insulated gate transistors.
5. The semiconductor device utilizing an oscillator claimed in claim 1, further comprising:
 - a feedback resistor that is installed in parallel with the oscillator.
6. An oscillation circuit, comprising:
 - an oscillator; and

a semiconductor device utilizing the oscillator,
the semiconductor device, comprising:
an inverting amplifier, that is installed in parallel with the oscillator, and that
intermittently outputs an oscillation signal in response to a given control signal; and
the inverting amplifier, comprising:
a first terminal that receives a first signal from the oscillator;
a second terminal that provides a second signal to the oscillator;
a transmission gate installed between the first terminal and the second
terminal, formed by using insulated gate transistors, set to an ‘on’ state where the first signal
is transmitted in a case of the control signal being set to a first logical level, and set to an ‘off’
state where the first signal is not transmitted in the other case of the control signal being set to
a second logical level;
an inverter installed between an output terminal of the transmission gate and
the second terminal, that is formed by using the insulated gate transistors, and that inverts a
logical level of a given signal so as to output the second signal; and
a clamping circuit installed between the output terminal of the transmission
gate and an input terminal of the inverter, that is formed by using the insulated gate transistor,
that is set to make the first signal output from the transmission gate applied to the input
terminal of the inverter in a case of the control signal being set to the first logical level, and
that is set to make predetermined voltage applied to the input terminal of the inverter in the
other case of the control signal being set to the second logical level.